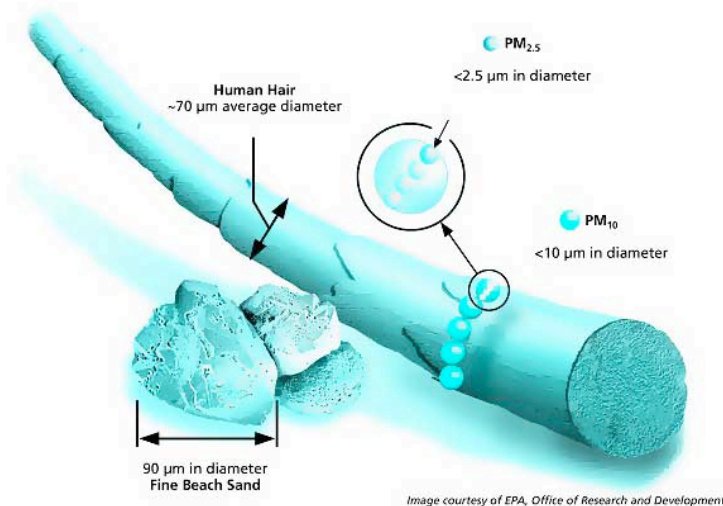


Particulate Matter

Particle pollution (also called particulate matter or PM) is the name for a mixture of solid particles and liquid droplets found in the air. Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others are so small, they can only be detected using an electron microscope.

There are two kinds of particle pollution. Inhalable coarse particles are larger than 2.5 micrometers in diameter but smaller than 10 micrometers. Fine particles are 2.5 micrometers or smaller in diameter. How small is 2.5 micrometers? Think about a single hair from your head. The average human hair is about 70 micrometers in diameter – making it 30 times larger than the largest fine particle. It's possible to inhale fine particles deep into the lungs.



Particles come in many sizes and shapes and can be made up of hundreds of different chemicals. Primary particles are emitted directly from a source, such as construction sites, unpaved roads, fields, smokestacks or fires. Secondary particles are formed when chemicals react in the atmosphere. Examples are sulfur dioxides and nitrogen oxides emitted from power plants, industries and automobiles. Secondary particles make up most of the fine particle pollution in the country.

The U.S. Environmental Protection Agency (EPA) regulates inhalable coarse particles and fine particles. The EPA does not regulate particles larger than 10 micrometers. This would include sand and large dust particles.

- **Health:** Particle pollution contains microscopic solids or liquid droplets that are so small they can get deep into the lungs and cause serious health problems. The size of particles is directly linked to their potential for causing health problems. Particles less than 10 micrometers in diameter pose the greatest health threats. They can lodge deep in your lungs and even enter your bloodstream.
- **Visibility:** Fine particles (PM_{2.5}) are the major cause of reduced visibility (haze) in parts of the United States, including many of our treasured national parks and wilderness areas.
- **Reducing particle pollution:** The EPA's national and regional rules to reduce emissions of pollutants that form particle pollution will help state and local governments meet national air quality standards.

Fast Facts

- Particles less than 2.5 micrometers in diameter are known as "fine" particles; those larger than 2.5 micrometers, but less than 10 micrometers are known as "coarse" particles.
- Fine particles are easily inhaled deep into the lungs where they may accumulate, react, be cleared or be absorbed.
- Scientific studies have linked particle pollution, especially fine particles, with a series of significant health problems, including:
 - increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing;
 - decreased lung function;
 - aggravated asthma;
 - development of chronic bronchitis;
 - irregular heartbeat;
 - nonfatal heart attacks; and
 - premature death in people with heart or lung disease.
- Particle pollution can cause coughing, wheezing, and decreased lung function even in otherwise healthy children and adults.
- Studies estimate that thousands of elderly people die prematurely each year from exposure to fine particles.
- According to the American Academy of Pediatrics, children and infants are among those most susceptible to many air pollutants. Children have increased exposure compared with adults because of higher minute ventilation and higher levels of physical activity.
- Fine particles can remain suspended in the air and travel long distances. For example, a puff of exhaust from a diesel truck in Los Angeles can end up over the Grand Canyon.
- Some of the pollutants that form haze have been linked to serious health problems and environmental damage.
- Particle pollution settles on soil and water and harms the environment by changing the nutrient and chemical balance.
- Unlike ozone, particle pollution can occur year-round.

For more information on particulate matter, visit: <http://www.epa.gov/particles/>

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